

**APPENDIX F: BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION  
OF COAL COMBUSTION EMISSIONS**

**Ordered by Year: 2003–1970**

Chang, M.C., S.M. Yi, P. Hopke, G.C. England, J.C. Chow, and J.G. Watson. 2003 accepted. Measurement of ultrafine particle size distributions from stationary combustion sources of coal, oil, and gas. *JAWMA*.

Chow, J.C., J.G. Watson, H.D. Kuhns, V. Etyemezian, D.H. Lowenthal, D.J. Crow, S.D. Kohl, J.P. Engelbrecht, and M.C. Green. 2003 submitted. Source profiles for industrial, mobile, and area sources in the Big Bend Regional Aerosol Visibility and Observational (BRAVO) Study. *Chemosphere*.

Dyke, P.H., C. Foan, and H. Fiedler. 2003. PCB and PAH releases from power stations and waste incineration processes in the UK. *Chemosphere* 50, 469-480.

Chen, L.W., B.G. Doddridge, R.R. Dickerson, J.C. Chow, and R.C. Henry. 2002. Origins of fine aerosol mass in the Baltimore-Washington corridor: Implications from observation, factor analysis, and ensemble air parcel back trajectories. *Atmos. Environ.* 36, 4541-4554.

Chow, J.C. and J.G. Watson. 2002. Review of PM<sub>2.5</sub> and PM<sub>10</sub> apportionment for fossil fuel combustion and other sources by the chemical mass balance receptor model. *Energy & Fuels* 16, 222-260.

Chow, J.C., J.G. Watson, D. Crow, S.D. Kohl, H.D. Kuhns, V. Etyemezian, and J.P. Engelbrecht. 2002. Source profiles for the Big Bend Regional Aerosol Visibility and Observational (BRAVO) Source Characterization Study, Draft report. Prepared for CIASTA, NOAA, Las Vegas, NV, by Desert Research Institute, Reno, NV, 75 pp.

Lipsky, E., C.O. Stanier, S.N. Pandis, and A.L. Robinson. 2002. Effects of sampling conditions on the size distribution of fine particulate matter emitted from a pilot-scale pulverized-coal combustor. *Energy & Fuels* 16, 302-310.

Pavageau, M.P., C. Pecheyran, E.M. Krupp, A. Morin, and O.F.X. Donard. 2002. Volatile metal species in coal combustion flue gas. *Environ. Sci. Technol.* 36, 1561-1573.

Rowe, C.L., W.A. Hopkins, and J.D. Congdon. 2002. Ecotoxicological implications of aquatic disposal of coal combustion residues in the United States: A review. *Environ. Monit. Assess.* 80, 207-276.

Seames, W.S., J. Sooroshian, and J.O.L. Wendt. 2002. Assessing the solubility of inorganic compounds from size-segregated coal fly ash aerosol impactor samples. *J. Aerosol Sci.* 33, 77-90.

Utsunomiya, S., K.A. Jensen, G.J. Keeler, and R.C. Ewing. 2002. Uraninite and fullerene in atmospheric particulates. *Environ. Sci. Technol.* 36, 4943-4947.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

- Watson, J.G., J.C. Chow, D.H. Lowenthal, N.F. Robinson, C.F. Cahill, and D.L. Blumenthal. 2002. Simulating changes in source profiles from coal-fired power stations: Use in chemical mass balance of PM<sub>2.5</sub> in the Mt. Zirkel Wilderness. *Energy & Fuels* 16, 311-324.
- Yan, R., H. Zhu, C. Zheng, and M. Xu. 2002. Emissions of organic hazardous air pollutants during Chinese coal combustion. *Energy* 27, 485-503.
- Bjorkman, A. 2001. Projects on coal characterization. *Fuel* 80, 155-166.
- Chen, K.S., C.F. Lin, and Y.M. Chou. 2001. Determination of source contributions to ambient PM<sub>2.5</sub> in Kaohsiung, Taiwan, using a receptor model. *JAWMA* 51, 489-498.
- Fernández-Martínez, G., P. López-Mahía, S. Muniategui-Lorenzo, D. Prada-Rodríguez, and E. Fernández-Fernández. 2001. Distribution of volatile organic compounds during the combustion process in coal-fired power stations. *Atmos. Environ.* 35, 5823-5831.
- Klita, Z., L. Bartonova, and D.A. Spears. 2001. Effect of boiler output on trace element partitioning during coal combustion in two fluidised-bed power stations. *Fuel* 80, 907-917.
- Lee, S.W. 2001. Source profiles of particulate matter emissions from a pilot-scale boiler burning North American coal blends. *JAWMA* 51, 1568-1578.
- Mastral, A.M., M.S. Callen, T. Garcia, and J.M. Lopez. 2001. Benzo(a)pyrene, benzo(a)anthracene, and dibenzo(a,h)anthracene emissions from coal and waste tire energy generation at atmospheric fluidized bed combustion (AFBC). *Environ. Sci. Technol.* 35, 2645-2649.
- Park, S.S., M.S. Bae, and Y.J. Kim. 2001. Chemical composition and source apportionment of PM<sub>2.5</sub> particles in the Sihwa area, Korea. *JAWMA* 51, 393-405.
- Rigby, J., J. Ma, B.W. Webb, and T.H. Fletcher. 2001. Transformations of coal-derived soot at elevated temperature. *Energy & Fuels* 15, 52-59.
- Sandelin, K. and R. Backman. 2001. Trace elements in two pulverized coal-fired power stations. *Environ. Sci. Technol.* 35, 826-834.
- Suarez-Fernandez, G.P., J.M.G. Vega, A.B. Fuertes, A.B. Garcia, and M.R. Martinez-Tarazona. 2001. Analysis of major, minor and trace elements in coal by radioisotope x-ray fluorescence spectrometry. *Fuel* 80, 255-261.
- Watson, J.G. and J.C. Chow. 2001. Source characterization of major emission sources in the Imperial and Mexicali valleys along the U.S./Mexico border. *Sci. Total Environ.* 276, 33-47.
- Watson, J.G., J.C. Chow, and J.E. Houck. 2001. PM<sub>2.5</sub> chemical source profiles for vehicle exhaust, vegetative burning, geological material, and coal burning in northwestern Colorado during 1995. *Chemosphere* 43, 1141-1151.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

- Yan, R., D. Gauthier, G. Flamant, and G. Peraudeau. 2001. Fate of selenium in coal combustion: Volatilization and speciation in the flue gas. *Environ. Sci. Technol.* 35, 1406-1410.
- Zhuang, Y. and P. Biswas. 2001. Submicrometer particle formation and control in a bench-scale pulverized coal combustor. *Energy & Fuels* 15, 510-516.
- Bednarik, V., M. Vondruska, M. Sild, and E. Vondruskova. 2000. Characterization of products from fluidized bed combustion of coal. *JAWMA* 50, 1920-1928.
- Brook, J.R., S.A. Woodhouse, P. Blanchard, T. Dann, E. Dabek-Zlotorzynska, S. Goldthorp, A. Wiebe, S.M. Li, L. Guise-Bagley, R. Hoff, A. Mamedov, L. Hanson-Smith, Z. Nejedly, J.L. Campbell, and J.C. Chow. 2000. Chemical mass balance analyses of Toronto area PM<sub>2.5</sub>. Report No. AES/AQRB-PERD-04. Environment Canada, Toronto, ON, Canada, 179 pp.
- Clemens, A.H., J.M. Deely, D. Gong, T.A. Moore, and J.C. Shearer. 2000. Partitioning behavior of some toxic trace elements during coal combustion - The influence of events occurring during the deposition stage. *Fuel* 79, 1781-1784.
- Enders, M., A. Putnis, and J. Albrecht. 2000. Temperature-dependent fractionation of particulate matter and sulfates from a hot flue gas in pressurized pulverized coal combustion (PPCC). *Energy & Fuels* 14, 806-815.
- Furimsky, E. 2000. Characterization of trace element emissions from coal combustion by equilibrium calculations. *Fuel Processing Technology* 63, 29-44.
- Gullett, B.K., J.E. Dunn, and K. Raghunathan. 2000. Effect of cofiring coal on formation of polychlorinated dibenzo-*p*-dioxins and dibenzofurans during waste combustion. *Environ. Sci. Technol.* 34, 282-290.
- Hong, L. and F. Dong. 2000. Comparative health risk assessment of coal power and nuclear power in China. *Progress in Nuclear Energy* 37, 31-36.
- Imhoff, R.E., R.L. Tanner, R.J. Valente, and M. Luria. 2000. The evolution of particles in the plume from a large coal-fired boiler with flue gas desulfurization. *JAWMA* 50, 1207-1214.
- Linak, W.P., C.A. Miller, and J.O.L. Wendt. 2000. Comparison of particle size distributions and elemental partitioning from the combustion of pulverized coal and residual fuel oil. *JAWMA* 50, 1532-1544.
- Mastral, A.M., M.S. Callén, and T. Garcia. 2000. Toxic organic emissions from coal combustion. *Fuel Processing Technology* 67, 1-10.
- Oros, D.R. and B.R.T. Simoneit. 2000. Identification and emission rates of molecular tracers in coal smoke particulate matter. *Fuel* 79, 515-536.
- Pakrasi, A. and W.T. Davis. 2000. Combustion sources - Coal. In *Air Pollution Engineering Manual, Second Edition*, Davis, W.T., Ed. John Wiley & Sons, Inc., New York, NY, pp. 191-221.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

- Seggiani, M., A. Bardi, and S. Vitolo. 2000. Prediction of fly-ash size distribution: A correlation between the char transition radius and coal properties. *Fuel* 79, 999-1002.
- Senior, C.L. 2000. Development of a mechanistic model for prediction of emission of trace elements from coal-fired power plants. *Fuel Processing Technology* 63, 75-77.
- Senior, C.L., L.E. Bool, III, and J.R. Morency. 2000. Laboratory study of trace element vaporization from combustion of pulverized coal. *Fuel Processing Technology* 63, 109-124.
- Smith, K.R., J.M. Veranth, A.A. Hu, J.S. Lighty, and A.E. Aust. 2000. Interleukin-8 levels in human lung epithelial cells are increased in response to coal fly ash and vary with bioavailability of iron, as a function of particle size and source of coal. *Chem. Research in Toxicology* 13, 118-125.
- Armesto, L. and J.L. Merino. 1999. Characterization of some coal combustion solid residues. *Fuel* 78, 613-618.
- Clemens, A.H., L.F. Damiano, D. Gong, and T.W. Matheson. 1999. Partitioning behavior of some toxic volatile elements during stoker and fluidised bed combustion of alkaline sub-bituminous coal. *Fuel* 78, 1379-1386.
- Fishman, N.S., C.A. Rice, G.N. Breit, and R.D. Johnson. 1999. Sulfur-bearing coatings on fly ash from a coal-fired power plant: Composition, origin, and influence on ash alteration. *Fuel* 78, 187-196.
- Flanders, P.J. 1999. Identifying fly ash at a distance from fossil fuel power stations. *Environ. Sci. Technol.* 33, 528-532.
- Genetti, D., T.H. Fletcher, and R.J. Pugmire. 1999. Development and application of a correlation of  $^{13}\text{C}$  NMR chemical structural analyses of coal based on elemental composition and volatile matter content. *Energy & Fuels* 13, 60-68.
- Helble, J.J. 1999. A model for the air emissions of trace metallic elements from coal combustors equipped with electrostatic precipitators. *Fuel Processing Technology* 63, 125-147.
- Hower, J.C., T.L. Robl, and G.A. Thomas. 1999. Changes in the quality of coal delivered to Kentucky power plants, 1978 to 1997: Responses to Clean Air Act directives. *International Journal of Coal Geology* 41, 125-155.
- Hower, J.C., T.L. Robl, and G.A. Thomas. 1999. Changes in the quality of coal combustion by-products produced by Kentucky power plants, 1978 to 1997: Consequences of Clean Air Act directives. *Fuel* 78, 701-712.
- Huggins, F.E., M. Najih, and G.P. Huffman. 1999. Direct speciation of chromium in coal combustion by-products by x-ray absorption fine structure spectroscopy. *Fuel* 78, 233-242.
- Jin, H., X. Yang, H. Yu, and D. Yin. 1999. Identification of ammonia and volatile phenols as primary toxicants in a coal gasification effluent. *Bull. Environ. Contam. Toxicol.* 63, 399-406.

**APPENDIX F: BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF COAL COMBUSTION EMISSIONS**

- Manz, O.E. 1999. Coal fly ash: A retrospective and future look. *Fuel* 78, 133-136.
- Mastral, A., M. Callen, R. Murillo, T. Garcia, and M. Vinas. 1999. Influence on PAH emissions of the air flow in AFB coal combustion. *Fuel* 78(13), 1553-1558.
- Mastral, A.M., M.S. Callén, and T. García. 1999. Polycyclic aromatic hydrocarbons and organic matter associated to particulate matter emitted from atmospheric fluidized bed coal combustion. *Environ. Sci. Technol.* 33, 3177-3184.
- Meyers, P.A. and B.R.T. Simoneit. 1999. Effect of extreme heating on the elemental and isotopic compositions of an Upper Cretaceous coal. *Organic Geochemistry* 30, 299-305.
- Pan, Z., Z. Chen, Z. Zhu, B. Xiu, Z. Ma, J. Hao, and H. He. 1999. Preliminary research of health and environmental impacts and greenhouse gas emission from coal-fired power and nuclear power chains in China. *Int. J. Global Energy Issues* 12, 257-270.
- Rose, N.L., S. Juggins, and J. Watt. 1999. The characterisation of carbonaceous fly-ash particles from major European fossil-fuel types and applications to environmental samples. *Atmos. Environ.* 33, 2699-2713.
- Sheng, C., M. Xu, J. Zhang, and Y. Xu. 1999. Comparison of sulphur retention by coal ash in different types of combustors. *Fuel Processing Technology* 64, 1-12.
- Smolík, J., J. Schwarz, V. Veselý, I. Sýkorová, J. Kucera, and V. Havránek. 1999. Characterization of solid emissions from atmospheric fluidized-bed combustion of two Czech lignites. *Environ. Sci. Technol.* 33, 3543-3551.
- Stanmore, B.R. and S.P. Visona. 1999. Prediction of NO emissions from a number of coal-fired power station boilers. *Fuel Processing Technology* 64, 25-46.
- Thompson, D. and B.B. Argent. 1999. Coal ash composition as a function of feedstock composition. *Fuel* 78, 539-548.
- Watson, J.G., J.C. Chow, S.D. Kohl, H.D. Kuhns, N.F. Robinson, C.A. Frazier, and V. Etyemezian. 1999. Annual report for the Robbins Particulate Study: October 1996 through September 1997. Report No. 7100.4F3. Prepared for VERSAR, Inc., Lombard, IL, by Desert Research Institute, Reno, NV, 312 pp.
- Wehner, B., T.C. Bond, W. Birmili, J. Heintzenberg, A. Wiedensohler, and R.J. Charlson. 1999. Climate-relevant particulate emission characteristics of a coal fired heating plant. *Environ. Sci. Technol.* 33, 3881-3886.
- Wu, H., T. Wall, G. Liu, and G. Bryant. 1999. Ash liberation from included minerals during combustion of pulverized coal: The relationship with char structure and burnout. *Energy & Fuels* 13, 1197-1202.
- Yan, R., X. Lu, and H. Zeng. 1999. Trace elements in Chinese coals and their partitioning during coal combustion. *Combust. Sci. Technol.* 145, 57-81.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF COAL COMBUSTION EMISSIONS**

- Aunela-Tapola, L., E. Hatanpaa, H. Hoffren, T. Laitinen, K. Larjava, P. Rasila, and M. Tolvanen. 1998. A study of trace element behavior in two modern coal-fired power plants. II. Trace element balances in two plants equipped with semi-dry flue gas desulphurisation facilities. *Fuel Processing Technology* 55, 13-34.
- Cereda, E., G.M.B. Marcazzan, M. Pedretti, G.W. Grime, and A. Baldacci. 1998. Influence of the elemental composition of individual fly ash particles on the efficiency of the electrostatic precipitators. *J. Aerosol Sci.* 27, 607-619.
- Levendis, Y.A., A. Atal, and J.B. Carlson. 1998. On the correlation of CO and PAH emissions from the combustion of pulverized coal and waste tires. *Environ. Sci. Technol.* 32, 3767-3777.
- Lu, R., S. Purushothama, X. Yang, J. Hyatt, W.P. Pan, J.T. Riley, and W.G. Lloyd. 1998. TG/FTIR/MS study of organic compounds evolved during the co-firing of coal and refuse-derived fuels. *Fuel Processing Technology* 59, 35-50.
- Mastral, A.M., M. Callen, R. Murillo, and T. Garcia. 1998. Assessment of PAH emissions as a function of coal combustion variables in fluidized bed 2. Air excess percentage. *Fuel* 77(13), 1513-1516.
- Pinto, J.P., R.K. Stevens, R.D. Willis, R.B. Kellogg, Y. Mamane, J. Novak, J. Santroch, I. Benes, J. Lenicek, and V. Bures. 1998. Czech air quality monitoring and receptor modeling study. *Environ. Sci. Technol.* 32, 843-854.
- Querol, X., A. Alastuey, J.A. Puicercus, E. Mantilla, J.V. Miro, A. Lopez-Soler, F. Plana, and B. Artiñano. 1998. Seasonal evolution of suspended particles around a large coal-fired power station: Particulate levels and sources. *Atmos. Environ.* 32, 1963-1978.
- Querol, X., A. Alastuey, J.A. Puicercus, E. Mantilla, C.R. Ruiz, A. Lopez-Soler, F. Plana, and R. Juan. 1998. Seasonal evolution of suspended particles around a large coal-fired power station: Chemical characterization. *Atmos. Environ.* 32, 719-732.
- Eatough, D.J., A. Du, J.M. Joseph, F.M. Caka, B. Sun, L. Lewis, N.F. Mangelson, M. Eatough, L.B. Rees, N.L. Eatough, R.J. Farber, and J.G. Watson. 1997. Regional source profiles of sources of SO<sub>x</sub> at the Grand Canyon during Project MOHAVE. *JAWMA* 47, 101-118.
- Eble, C.F. and J.C. Hower. 1997. Coal quality trends and distribution of potentially hazardous trace elements in eastern Kentucky coals. *Fuel* 76, 711-715.
- Hatanpää, E., K. Kajander, T. Laitinen, S. Piepponen, and H. Revitzer. 1997. A study of trace element behavior in two modern coal-fired power plants. I. Development and optimization of trace element analysis using reference materials. *Fuel Processing Technology* 51, 205-217.
- Pires, M., H. Feidler, and E.C. Teixeira. 1997. Geochemical distribution of trace elements in coal: Modelling and environmental aspects. *Fuel* 76, 1425-1437.
- Purushothama, S., W.P. Pan, J.T. Riley, and W.G. Lloyd. 1997. Analysis of polynuclear aromatic hydrocarbons from coal fly ash. *Fuel Processing Technology* 53, 235-242.

**APPENDIX F: BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF COAL COMBUSTION EMISSIONS**

Helble, J.J., W. Mojtabahi, J. Lyyranen, J. Jokiniemi, and E. Kauppinen. 1996. Trace element partitioning during coal gasification. *Fuel* 75, 931-939.

Huggins, F.E. and G.P. Huffman. 1996. Modes of occurrence of trace elements in coal from XAFS spectroscopy. *Int. J. Coal Geol.* 32, 31-53.

Martinez-Tarazona, M.R. and D.A. Spears. 1996. The fate of trace elements and bulk minerals in pulverized coal combustion in a power station. *Fuel Processing Technology* 47, 79-92.

Murakami, K., H. Shirato, J. Ozaki, and Y. Nishiyama. 1996. Effect of metal ions on the thermal decomposition of brown coal. *Fuel Processing Technology* 46, 183-194.

Tumati, P.R. and R.A. Bilonick. 1996. Estimating trace element emissions using USGS coal data. *JAWMA* 46, 58-65.

de Raat, W.K., J.P. Boers, G.L. Bakker, F.A. de Meijere, A. Hooimeijer, P.H.M. Lohman, and G.R. Mohn. 1995. Contribution of PAH and some of their nitrated derivatives to the mutagenicity of ambient airborne particles and coal fly ash. *Sci. Total Environ.* 153, 7-28.

Sandia National Laboratories. 1995. The origin and properties of unburned carbon from pulverized-coal combustion. Report No. EPRI TR-105743. Prepared for EPRI, Palo Alto, CA, by Sandia National Laboratories, Livermore, CA, 117 pp.

Mueller, S.F. and R.E. Imhoff. 1994. Estimates of particle formation and growth in coal-fired boiler exhaust. I. Observation. *Atmos. Environ.* 28, 595-602.

Mueller, S.F. and R.E. Imhoff. 1994. Estimates of particle formation and growth in coal-fired boiler exhaust. II. Theory and model simulation. *Atmos. Environ.* 28, 603-610.

Bange, P. 1993. Hidden photostationary equilibrium: A case study on the effect of monitor averaging on the calculated oxidation rate of NO to NO<sub>2</sub> in the plume of a power plant. *Atmos. Environ.* 27A, 573-580.

Huggins, F.E., N. Shah, J. Zhao, F. Lu, and G.P. Huffman. 1993. Nondestructive trace element speciation in coal and ash by XAFS spectroscopy. *Energy & Fuels* 7, 482-489.

Lin, Z.C., J.M. Ondov, and W.R. Kelly. 1993. Tracing emissions from coal-fired power plants with enriched rare-earth isotopes. *Fuel* 72, 697.

Niss, N.D., J.F. Schabron, and T.H. Brown. 1993. Determination of selenium species in coal fly ash extracts. *Environ. Sci. Technol.* 27, 827-829.

Garcia, J.P., S. Beyne-Masclet, and G. Mouvier. 1992. Emissions of volatile organic compounds by coal-fired power stations. *Atmos. Environ.* 26A, 1589-1597.

Han, M. 1992. Coal- and oil-fired power plant contributions to the atmosphere of Maryland. Ph.D. Dissertation, University of Maryland, College Park, MD, 255 pp.

**APPENDIX F: BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF COAL COMBUSTION EMISSIONS**

- Khalil, M.A.K. and R.A. Rasmussen. 1992. Nitrous oxide from coal-fired power plants: Experiments in the plumes. *J. Geophys. Res.* 97, 14645-14650.
- Mueller, S.F. and R.E. Imhoff. 1992. Particle formation and growth in coal-fired boiler exhaust. *85th Annual Meeting of the AWMA*, Kansas City, MO, 21-22.
- Ondov, J.M., W.R. Kelly, J.Z. Holland, Z.C. Lin, and S.A. Wight. 1992. Tracing fly ash emitted from a coal-fired power plant with enriched rare-earth isotopes: An urban scale test. *Atmos. Environ.* 26B, 453-462.
- Hurst, R.W. and T.E. Davis. 1991. Strontium and lead isotopes as monitors of coal combustion residue in environment. *Engineering Geology* 30, 59-77.
- Hurst, R.W., T.E. Davis, and A.A. Elseewi. 1991. Strontium isotopes as tracers of coal combustion residue in environment. *Engineering Geology* 30, 59-77.
- Yokoyama, T., K. Asakura, and T. Seki. 1991. CRIEPI REPORT: Field study of trace elements behavior in coal-fired power plants. Report No. ET 91002. Komae Research Laboratory, Tokyo, Japan, 53 pp.
- Chen, L.C., H.F. Lam, E.J. Kim, J. Guty, and M.O. Amdur. 1990. Pulmonary effects of ultrafine coal fly ash inhaled by guinea pigs. *J. Toxicol. Environ. Health* 29, 169-184.
- Richards, L.W., J.A. Anderson, D.L. Blumenthal, and J.A. McDonald. 1990. Nitrogen and sulfur chemistry and aerosol formation in a western coal-fired power plant plume. In *Transactions, Visibility and Fine Particles*, Mathai, C.V., Ed. Air & Waste Management Association, Pittsburgh, PA, pp. 242-260.
- Winiwarter, W., S. Houtrouw, L. Lewis, E.A. Lewis, L.D. Hansen, D.J. Eatough, and W.C. Malm. 1990. Tracers of coal-fired power plants in the Lake Powell region. In *Transactions, Visibility and Fine Particles*, Mathai, C.V., Ed. Air & Waste Management Association, Pittsburgh, PA, p. 885.
- Dunstan, T.D., R.F. Mauldin, Z. Jinxian, A.D. Hipps, E.L. Wehry, and G. Mamantov. 1989. Adsorption and photodegradation of pyrene on magnetic, carbonaceous, and mineral subfractions of coal stack ash. *Environ. Sci. Technol.* 23, 303-308.
- Kim, D.S., P.K. Hopke, G.S. Casuccio, R.J. Lee, S.E. Miller, G.M. Sverdrup, and R.W. Garber. 1989. Comparison of particles taken from the ESP and plume of a coal fired power plant with background aerosol particles. *Atmos. Environ.* 23, 81-84.
- Lewis, T.R., F.H.Y. Green, W.J. Moorman, J.R. Burg, and D.W. Lynch. 1989. A chronic inhalation toxicity study of diesel engine emissions and coal dust, alone and combined. *J. Am. Coll. Toxicol.* 8, 345-375.
- Matyniak, Z. 1989. Contribution of SO<sub>2</sub> sorption on particulate surface to the air pollution level in the vicinity of coal-fired power plants. *Sci. Total Environ.* 83, 173-179.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

- Behymer, T.D. and R. A. Hites. 1988. Photolysis of polycyclic aromatic hydrocarbons adsorbed on fly ash. *Environ. Sci. Technol.* 22, 1311-1319.
- Griest, W.H., B.A. Tompkins, and J.R. Caffrey. 1988. Improved ultrasonic extraction recovery of benzo[a]pyrene from stack ash using high power/mass ratios. *Anal. Chem.* 60, 2159.
- Norton, G.A., K.L. Malaby, and E.L. de Kalb. 1988. Chemical characterization of ash produced during combustion of refuse-derived fuel with coal. *Environ. Sci. Technol.* 22, 1279-1283.
- Olmez, I., A.E. Sheffield, G.E. Gordon, J.E. Houck, L.C. Pritchett, J.A. Cooper, T.G. Dzubay, and R.L. Bennett. 1988. Compositions of particles from selected sources in Philadelphia for receptor model applications. *JAPCA* 38, 1392-1402.
- Ben-Aim, R.I. 1987. Influence of structural parameters on the mechanism of combustion of coal. *Int. Chem. Eng.* 27, 70-75.
- Dai, S., T. Zhu, Y. Zeng, X. Fu, and Y. Liao. 1987. Characterization of components of coal-fired flue dust from industrial and residential sources in Tianjin. *Environ. Sci.* 8, 18-23.
- Eatough, D.J., J.R. Bennett, N. Lytle, M. Brutsch, T.T. Luke, S. Houtrouw, N.F. Mangelson, M.W. Hill, E.A. Lewis, L.D. Hansen, N.L. Eatough, and R.J. Farber. 1987. Identification of the presence of coal-fired power plant emissions using spherical particles and total fluoride as tracers. In *Transactions, Visibility Protection: Research and Policy Aspects*, Bhardwaja, P.S., Ed. Air Pollution Control Association, Pittsburgh, PA, pp. 720-735.
- Parekh, P.P. and L. Husain. 1987. Fe/Mg ratio: A signature for local coal-fired power plants. *Atmos. Environ.* 21, 1707-1712.
- Sousa, J.A., J.E. Houck, J.A. Cooper, and J.M. Daisey. 1987. The mutagenic activity of particulate organic matter collected with a dilution sampler at coal-fired power plants. *JAPCA* 37, 1439-1444.
- Amdur, M.O., A.F. Sarofim, M. Neville, R.J. Quann, J.F. McCarthy, J.F. Elliott, H.F. Lam, A.E. Rogers, and M.W. Conner. 1986. Coal combustion aerosols and SO<sub>2</sub>: An interdisciplinary analysis. *Environ. Sci. Technol.* 20, 138-145.
- Hackley, K.C. and T.F. Anderson. 1986. Sulfur isotopic variations in low-sulfur coals from the Rocky Mountain region. *Geochimica et Cosmochimica Acta* 50, 1703-1713.
- Kim, D.S., P.K. Hopke, G. Casuccio, and R. Lee. 1986. Particle class analysis for coal-fired power plant fly ash. *79th Annual Meeting of the APCA*, Minneapolis, MN, 53-56.
- Lewis, T.R., F.H.Y. Green, W.J. Moorman, J.A.R. Burg, and D.W. Lynch. 1986. A chronic inhalation toxicity study of diesel engine emissions and coal dust, alone and combined. In *Carcinogenic and Mutagenic Effects of Diesel Engine Exhaust*, Ishnishi, N.N., A. Koizumi, R.O. McClellan, W. Stoeber, Eds. Elsevier, Amsterdam, The Netherlands, pp. 361-380.

**APPENDIX F: BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF COAL COMBUSTION EMISSIONS**

Norton, G.A., E.L. DeKalb, and K.L. Malaby. 1986. Elemental composition of suspended particulate matter from the combustion of coal and coal/refuse mixtures. *Environ. Sci. Technol.* 20, 604-609.

Sheffield, A.E. and G.E. Gordon. 1986. Variability of particle composition from ubiquitous sources: Results from a new source-composition library. In *Transactions, Receptor Methods for Source Apportionment: Real World Issues and Applications*, Pace, T.G., Ed. Air Pollution Control Association, Pittsburgh, PA, pp. 9-22.

Yokley, R.A., A.A. Garrison, E.L. Wehry, and G. Mamantov. 1986. Photochemical transformation of pyrene and benzo(a)pyrene vapor-deposited on eight coal stack ashes. *Environ. Sci. Technol.* 20, 86-90.

Bauer, C.F. and A.W. Andren. 1985. Emissions of vapor-phase fluorine and ammonia from the Columbia coal-fired power plant. *Environ. Sci. Technol.* 19, 1099-1103.

Gleit, A., W. Moran, and A. Jung. 1985. Coal sampling and analysis: Methods and models. Report No. EPA/600/S7-85/024. U.S. EPA, Research Triangle Park, NC, 188 pp.

Gordon, G.E. and A.E. Sheffield. 1985. Variability of compositions of particles released by coal-fired power plants. In *Environmental Science of Fuels*, Markuszewski, R. and B. Blaustein, Eds. American Chemical Society, pp. 78-84.

Harrison, F.L., D.J. Bishop, and B.J. Mallon. 1985. Comparison of organic combustion products in fly ash collected by a venturi wet scrubber and an electrostatic precipitator at a coal-fired power station. *Environ. Sci. Technol.* 19, 186.

Holcombe, L.J., B.P. Eynon, and P. Switzer. 1985. Variability of elemental concentrations in power plant ash. *Environ. Sci. Technol.* 19, 615-620.

Kaufherr, N., M. Shenasa, and D. Lichtman. 1985. X-ray photoelectron spectroscopy studies of coal fly ashes with emphasis on depth profiling of submicrometer particle size fractions. *Environ. Sci. Technol.* 19, 609-614.

Lichtman, D. and S. Mroczkowski. 1985. Scanning electron microscopy and energy-dispersive x-ray spectroscopy analysis of submicrometer coal fly ash particles. *Environ. Sci. Technol.* 19, 274-277.

Markowski, G.R. and R. Filby. 1985. Trace element concentration as a function of particle size in fly ash from a pulverized coal utility boiler. *Environ. Sci. Technol.* 19, 796-804.

Schure, M.R., P.A. Soltys, D.F.S. Natusch, and T. Mauney. 1985. Surface area and porosity of coal fly ash. *Environ. Sci. Technol.* 19, 82-86.

Baker, G., P. Clarke, R.W. Gerstle, W. Mason, and M.F. Phillips. 1984. Emission characterization of major fossil fuel power plants in the Ohio River Valley, U.S. Environmental Protection Agency, Research Triangle Park, NC, 258 pp.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

Cabaniss, G.E. and R.W. Linton. 1984. Characterization of surface species on coal combustion particles by x-ray photoelectron spectroscopy in concert with ion sputtering and thermal desorption. *Environ. Sci. Technol.* 18, 271-275.

Conzemius, R.J., T.D. Welcomer, and H.J. Svec. 1984. Elemental partitioning in ash depositories and material balances for a coal burning facility by spark source mass spectrometry. *Environ. Sci. Technol.* 18, 12-18.

Fogg, T.R. and K.A. Rahn. 1984. Boron as a tracer of aerosol from combustion of coal. *Geophys. Res. Lett.* 1, 854-857.

Gay, A.J., R.F. Littlejohn, and P.J. van Duin. 1984. Studies of carbonaceous cenospheres from fluidised-bed combustors. *Sci. Total Environ.* 36, 239-246.

Hansen, L.D., D. Silberman, G. Fisher, and D.J. Eatough. 1984. Chemical speciation of elements in stack-collected, respirable-size, coal fly ash. *Environ. Sci. Technol.* 18, 181-186.

Helmke, P.A., W.P. Robarge, M.B. Schoenfield, P. Burger, R.D. Koons, and J.E. Thresher. 1984. Impacts of coal combustion on trace elements in the environment: Wisconsin Power Plant Impact Study. Report No. EPA-600/S3-84-070. U.S. Environmental Protection Agency, Duluth, MN, 87 pp.

Kaufherr, N. and D. Lichtman. 1984. Comparison of micron and submicron fly ash particles using scanning electron microscopy and x-ray elemental analysis. *Environ. Sci. Technol.* 18, 544-547.

Kövér, L. and J. Tóth. 1984. XPS investigation of air pollution ejected by a coal-fired power plant. *Atmos. Environ.* 18, 2135-2141.

McQuaker, N.R. and D.K. Sandberg. 1984. Determination of coal dust in airborne particulate materials by automated optical microscopy. *JAPCA* 34, 1134-1136.

Papastefanou, C. and S. Charalambous. 1984. On the escaping radioactivity from coal power plants. *Health Phys.* 46, 293-302.

Roy, W.R., R.A. Griffin, D.R. Dickerson, and R.M. Schuller. 1984. Illinois basin coal fly ashes 1. Chemical characterization and solubility. *Environ. Sci. Technol.* 18, 734-739.

Ahlberg, M., L. Berghem, G. Nordberg, S.A. Persson, L. Rudling, and B. Steen. 1983. Chemical and biological characterization of emissions from coal and oil fired power plants. *Environ. Health Perspect.* 47, 85-102.

Donagi, A.E., A.I. Goren, R. Toeplitz, and J.R. Goldsmith. 1983. Epidemiological monitoring near a coal-fired power plant. *JAPCA* 33, 986-988.

Gillani, N.V., J.A. Colby, and W.E. Wilson. 1983. Gas-to-particle conversion of sulfur in power plant plumes. III. Parameterization of plume-cloud interactions. *Atmos. Environ.* 17, 1753.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

- Gillani, N.V. and W.E. Wilson. 1983. Gas-to-particle conversion of sulfur in power plant plumes. II. Observations of liquid-phase conversion. *Atmos. Environ.* 17, 1739.
- Hill, A.H., G.L. Anderson, and D.K. Fleming. 1983. Theoretical investigation of selected trace elements in coal gasification plants. Report No. EPA-600/S7-83-047. EPA, Research Triangle Park, NC, 329 pp.
- Luria, M., J. Olszyna, and J.F. Meagher. 1983. The atmospheric oxidation of flue gases from a coal-fired power plant: A comparison between smog chamber and airborne plume sampling. *JAPCA* 33, 483-487.
- Olszyna, K.L., J.F. Meagher, and M. Luria. 1983. The effect of unsaturated hydrocarbons on photochemical transformation of flue gas from a coal-fired power plant. *JAPCA* 33, 980-981.
- Ondov, J.M. and W.R. Kelly. 1983. Enriched rare-earth isotopes as tracers of aerosol particulate emissions from coal-fired power plants. *Atmos. Environ.* 17 (12), 1317-1319.
- Candelaria, R.B. and G.E. Palomino. 1982. Characterization of Navajo Generating Station emissions measured during the June-July 1979 VISTTA field program. *Atmos. Environ.* 16, 2287-2298.
- Davis, W.T. and M.A. Fiedler. 1982. The retention of sulfur in fly ash from coal-fired burners. *JAPCA* 32, 395-397.
- Hobbs, P.V. and D.A. Hegg. 1982. Sulfate and nitrate mass distributions in the near fields of some coal-fired power plants. *Atmos. Environ.* 16, 2657-2662.
- Hock, J.L. and D. Lichtman. 1982. Studies of surface layers on single particles of in-stack coal fly ash. *Environ. Sci. Technol.* 16, 423-427.
- Huggins, F.E., D.A. Kosmack, G.P. Huffman, and R.J. Lee. 1982. Scanning electron microscopy-based automatic image analysis (SEM0AIA) and Mössbauer spectroscopy: Quantitative characterization of coal minerals, coal products: Analytical characterization techniques. Fuller, E.L., Ed. American Chemical Society, Washington, D.C., pp. 239-258.
- McElroy, M.W., R.C. Carr, D.S. Ensor, and G.R. Markowski. 1982. Size distribution of fine particles from coal combustion. *Science* 215, 13-19.
- Minnis, M.M. 1982. A method for assigning signatures to coal fly ash samples and individual particle analysis technique. Ph.D. Dissertation, State University of New York, NY, 122 pp.
- Neville, M. and A.F. Sarofim. 1982. The stratified composition of inorganic submicron particles produced during coal combustion. In *Nineteenth Symposium (International) on Combustion*. The Combustion Institute, pp. 1441-1449.
- QueHee, S.S., V.N. Finelli, F.L. Fricke, and K.A. Wolnik. 1982. Metal content of stack emissions, coal and fly ash from some eastern and western power plants in the U.S.A. as obtained by ICP-AES. *J. Environ. Anal. Chem.* 13, 1-18.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

- Roy, W.R. and R.A. Griffin. 1982. A proposed classification system for coal fly ash in multidisciplinary research. *Journal of Environmental Quality* 11, 563-568.
- Brombaugh, K.J., G.C. Page, C.H. Williams, L.O. Edwards, W.D. Balfour, D.S. Lewis, and K.W. Lee. 1981. Aerosol characterization of ambient air near a commercial lurgi coal gasification plant. Report No. EPA-600/S7/80-177. U.S. Environmental Protection Agency, Research Triangle Park, NC, 139 pp.
- Gillani, N.V., S. Kohli, and W.E. Wilson. 1981. Gas-to-particle conversion of sulfur in power plant plumes. I. Parameterization of the conversion rate for dry, moderately polluted ambient conditions. *Atmos. Environ.* 15, 2293.
- Hulett, L.D., Jr., A.J. Weinberger, N.M. Ferguson, K.J. Northcutt, and W.S. Lyon. 1981. Trace element and phase relations in fly ash. Report No. EPRI EA-1822. Electric Power Research Institute, Palo Alto, CA, 63 pp.
- Hurst, R.W. and T.E. Davis. 1981. Strontium isotopes as tracers of airborne fly ash from coal-fired power plants. *Environ. Geol.* 3, 363-367.
- Ondov, J.M., A.H. Biermann, R.E. Heft, and R.F. Koszykowski. 1981. Elemental composition of atmospheric fine particles emitted from coal burned in a modern electric power plant equipped with a flue-gas desulfurization system. In *Atmospheric Aerosol: Source/Air Quality Relationships*, Macias, E.S. and P.K. Hopke, Eds. American Chemical Society, Washington, DC, pp. 173-186.
- Painter, P.C., R.W. Snyder, M. Starsinic, M.M. Coleman, D.W. Kuehn, and A. Davis. 1981. Concerning the application of FTIR to the study of coal: A critical assessment of band assignments and the application of spectral analysis programs. *Fuel* 35, 475-485.
- Richards, L.W., J.A. Anderson, D.L. Blumenthal, A.A. Brandt, J.A. McDonald, N. Waters, E.S. Macias, and P.S. Bhardwaja. 1981. The chemistry, aerosol physics, and optical properties of a western coal-fired power plant plume. *Atmos. Environ.* 15, 2111-2134.
- Straughan, I.R., A.A. Elseewi, A.L. Page, I.R. Kaplan, R.W. Hurst, and T.E. Davis. 1981. Fly ash-derived strontium as an index to monitor deposition from coal-fired power plants. *Science* 212, 1267-1269.
- Wangen, L.E. 1981. Elemental composition of size-fractionated aerosols associated with a coal-fired power plant plume and background. *Environ. Sci. Technol.* 15, 1080-1088.
- Wilson, W.E. 1981. Sulfate formation in point source plumes: A review of recent field studies. *Atmos. Environ.* 15, 2573-2581.
- Cahill, T.A. and L.L. Ashbaugh. 1980. Size/composition profiles of resuspended fly ash. In *Environmental and Climatic Impact of Coal Utilization*, Singh, J.J. and A. Deepak, Eds. Academic Press, pp. 569-573.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

- Evans, D.W., J.G. Wiener, and J.H. Horton. 1980. Trace element inputs from a coal burning power plant to adjacent terrestrial and aquatic environments. *JAPCA* 30, 567-573.
- Fisher, G.L. and F.D. Wilson. 1980. The effects of coal fly ash and silica inhalation of macrophage function and progenitors. *J. Reticulodentel. Soc.* 27, 513-524.
- Germani, M.S. 1980. Selected studies of four high temperature air pollution sources. Ph.D. Dissertation, University of Maryland, College Park, MD, 386 pp.
- Gillani, N.V. and W.E. Wilson. 1980. Formation and transport of ozone and aerosols in power plant plumes. *Annals of the New York Academy of Sciences* 338, 219.
- Hansen, L.D. and G.L. Fisher. 1980. Elemental distribution in coal fly ash particles. *Environ. Sci. Technol.* 14, 1111.
- Hayes, T.L., J.B. Pawley, G.L. Fisher, and M. Goldman. 1980. A model for the exposure of individual lung cells to the foreign elements contained in fly ash. *Environ. Res.* 22, 499-509.
- Hulett, L.D., Jr. and A.J. Weinberger. 1980. Some etching studies of the microstructure and composition of large aluminosilicate particles in fly ash from coal-burning power plants. *Environ. Sci. Technol.* 14, 965-970.
- Hulett, L.D., Jr., A.J. Weinberger, K.J. Norikcutt, and M. Ferguson. 1980. Chemical species in fly ash from coal-burning power plants. *Science* 210, 1356-1358.
- Macias, E.S., D.L. Blumenthal, J.A. Anderson, and B.K. Cantrell. 1980. Size and composition of visibility-reducing aerosols in southwestern plumes. *Annals of the New York Academy of Sciences* 338, 233-257.
- McCarroll, J. 1980. Health effects associated with increased use of coal. *JAPCA* 30, 652-656.
- Rothenberg, S.R., P.B. DeNee, and P. Holloway. 1980. Coal combustion fly ash characterization: Electron spectroscopy for chemical analysis, energy dispersive x-ray analysis, and scanning electron microscopy. *Applied Spectroscopy* 34, 549-560.
- Small, R.D. 1980. The trace element chemistry of coal during combustion and the emissions from coal-fired power plants. *Progress in Energy Combustion Science* 6, 53.
- Coles, D.G., R.C. Ragaini, J.M. Ondov, G.L. Fisher, D. Silberman, and B.A. Prentice. 1979. Chemical studies of stack fly ash from a coal-fired power plant. *Environ. Sci. Technol.* 13, 455-459.
- Griest, W.H. and M.R. Guerin. 1979. Identification and qualification of POM on particulates from a coal-fired power plant. Interim Report. Electric Power Research Institute, Palo Alto, CA, 95 pp.
- Homolya, J.B. and J.L. Cheney. 1979. A study of the primary sulfate emissions from a coal-fired boiler with FGD. *JAPCA* 29, 1000-1004.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

Ondov, J.M., R.C. Ragaini, and A.H. Biermann. 1979. Emissions and particle-size distributions of minor and trace elements at two western coal-fired power plants equipped with cold-side electrostatic precipitators. *Environ. Sci. Technol.* 13, 946-953.

Schock, M.R., W.W. Morrison, and G.A. Christianson. 1979. The long term effects of trace elements emitted by energy conversion of lignite coal. North Dakota State Department of Health Division of Environmental Research, Bismark, ND, 462 pp.

Small, R.D., J.A. Campbell, and K.K. Nielson. 1979. Characterization and formation of submicron particles in coal-fired power plants. *Atmos. Environ.* 13, 607.

Campbell, J.A., J.C. Laul, K.K. Nielson, and R.D. Smith. 1978. Separation and chemical characterization of finely sized fly-ash particles. *Anal. Chem.* 50, 1032.

Coles, D.G., R.C. Ragaini, and J.M. Ondov. 1978. Behavior of natural radionuclides in western coal-fired power plants. *Environ. Sci. Technol.* 12, 442-446.

Fisher, G.L., B.A. Prentice, D. Silverman, J.M. Ondov, A.H. Biermann, R.C. Radaini, and A.R. McFarland. 1978. Physical and morphological studies of size-classified coal fly ash. *Environ. Sci. Technol.* 12, 447-451.

Gillani, N.V., R.B. Husar, J.D. Husar, and D.E. Patterson. 1978. Project MISTT: Kinetics of particulate sulfur formation in a power plant plume out to 300 km. *Atmos. Environ.* 12, 589-598.

Gladney, E.S., L.E. Wangen, D.B. Curtis, and E.T. Jurney. 1978. Observations on boron release from coal-fired power plants. *Environ. Sci. Technol.* 12, 1084.

Husar, R.B., D.E. Patterson, J.D. Husar, N.V. Gillani, and W.E. Wilson. 1978. Sulfur budget of a power plant plume. *Atmos. Environ.* 12, 549-568.

Ondov, J.M., R.C. Ragaini, and A.H. Biermann. 1978. Elemental particle-size emissions from coal-fired power plants: Use of an inertial cascade impactor. *Atmos. Environ.* 12, 1175-1185.

Anderson, W.L. and K.E. Smith. 1977. Dynamics of mercury at coal-fired power plants and adjacent cooling lake. *Environ. Sci. Technol.* 11, 227.

Jacko, R.B. and D.W. Neuendorf. 1977. Trace metal particulate emission test results from a number of industrial and municipal point sources. *JAPCA* 27, 989-994.

Block, C. and R. Dams. 1976. Study of fly ash emission during combustion of coal. *Environ. Sci. Technol.* 10, 1011-1017.

Cheng, R.J., V.A. Mohnen, T.T. Shen, M. Current, and J.B. Hudson. 1976. Characterization of particulates from power plants. *JAPCA* 26, 787-790.

Gladney, E.S., J.A. Small, G.E. Gordon, and W.H. Zoller. 1976. Composition and size distribution of in-stack particulate material at a coal-fired power plant. *Atmos. Environ.* 10, 1071-1077.

**APPENDIX F:****BIBLIOGRAPHY OF PUBLICATIONS ON THE COMPOSITION OF  
COAL COMBUSTION EMISSIONS**

Small, J.A. 1976. An elemental and morphological characterization of the emissions from the Dickerson and Chalk Point coal-fired power plants. Ph.D. Dissertation, University of Maryland, College Park, MD, 360 pp.

Andren, A.W., D.H. Klein, and K. Talmi. 1975. Selenium in coal-fired steam plant emissions. *Environ. Sci. Technol.* 9, 856-858.

Kaakinen, J.W., R.M. Jorden, M.H. Lawasani, and R.E. West. 1975. Trace element behavior in a coal-fired power plant. *Environ. Sci. Technol.* 9, 862-869.

Klein, D.H., A.W. Andren, J.A. Carter, J.R. Emery, C. Feldman, W. Fulkerson, W.S. Lyon, J.C. Ogle, Y. Talmi, R.I. van Hook, and N. Bolton. 1975. Pathways of thirty-seven trace elements through a coal fired power plant. *Environ. Sci. Technol.* 9, 973-979.

Nadkarni, R.A. 1975. Multielement analysis of coal and coal fly ash standards by instrumental neutron activation analysis. *Radichem. Radioanal. Letters* 21, 161.

Davison, R.L., D.F.S. Natusch, J.R. Wallace, and C.A. Evans, Jr. 1974. Trace elements in fly ash: Dependence of concentration on particle size. *Environ. Sci. Technol.* 8, 1107-1113.

Gladney, E.S. 1974. Trace element emissions from coal-fired power plants: A study of the Chalk Point electric generating station. Ph.D. Dissertation, University of Maryland, College Park, MD, 112 pp.

Billings, C.E. and W.R. Matson. 1972. Mercury emissions from coal combustion. *Science* 176, 1232-1233.

Paulson, C.A.J. and A.R. Ramsden. 1970. Some microscopic features of fly-ash particles and their significance in relation to electrostatic precipitation. *Atmos. Environ.* 4, 175-185.